Somewhat merging gobject-introspection into GLib

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The problem

gobject-introspection was meant to incubate separately from GLib
Time passed (10+ years)
gobject-introspection depends on GLib
But GLib’s introspection data is generated by gobject-introspection
What is gobject-introspection?

- g-ir-scanner
- g-ir-compiler
- libgirepository
- GIR (XML) format
- Typelib (binary) format
Merging the two

gobject-introspection
  g-ir-scanner
  libgirepository
  g-ir-compiler

GLib
  GLib
  GObject
  GModule
  GIO

**Figure**: Previous components layout in the two projects
Merging the two

gobject-introspection

GLib

GLib
Object
GModule
GIO
g-ir-scanner
libgirepository
g-ir-compiler

Figure: Merge all of gobject-introspection into GLib ??? Profit
Merging the two, approach 2

\begin{figure}
\begin{center}
gobject-introspection
\begin{itemize}
  \item g-ir-scanner
\end{itemize}
\end{center}
\end{figure}

\begin{figure}
\begin{center}
GLib
\begin{itemize}
  \item GLib
  \item GObject
  \item GModule
  \item GIO
  \item libgirepository
  \item g-ir-compiler
\end{itemize}
\end{center}
\end{figure}

\textbf{Figure}: Merge libgirepository into GLib ??? Profit
API changes

- `girepository-1.0.pc → girepository-2.0.pc`
- `GIRepository-2.0.typelib → GIRepository-3.0.typelib`
- `g-ir-scanner → gi-compile-repository`
- `g_prefix → gi_prefix`
- `GTypeInstance`
API changes

https://docs.gtk.org/girepository/migrating-gi.html
What does this mean for me? Apps

- Nothing!
- Apps still generate GIR files as before
- Just use whatever your build system uses for compiling typelibs (gnome.generate_gir())
What does this mean for me? Bindings

- Think about porting to the new version of libgirepository
- Probably not feasible to make it a compile time option
What does this mean for me? Distros

- You’ll end up shipping parallel libgirepository and utilities for a while
- No need for a flag day until you want to stop packaging the old versions
- Packaging GLib now needs a bootstrapping build without introspection, then again with introspection
What does this mean for me? GLib

- Now have a bootstrap cycle between GLib and gobject-introspection
- GLib needs gobject-introspection in order to build its own bindings
- We can (and do) now use gi-docgen in GLib
What’s next?

- More testing and improvements to libgirepository
- Now up to about 70% of functions
- Continue improving gi-docgen docs in GLib (help appreciated)
- Introspection is going to get louder (see Emmanuele’s talk)
Miscellany

GIRepository merging issue
https://gitlab.gnome.org/GNOME/glib/-/issues/2616

libgirepository API migration docs
https://docs.gtk.org/girepository/migrating-gi.html

Help improve GLib doc comments
https://gitlab.gnome.org/GNOME/glib/-/issues/3250

Slide source https://gitlab.gnome.org/pwithnall/
guadec-introspection-presentation-2024

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Beamer theme: https://gitlab.gnome.org/GNOME/presentation-templates/tree/master/GUADEC/2024